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## **Quarterly Report**

### **Vulnerability and Risk Reduction Through a Community-Based System for Flood Monitoring and Forecasting (Cooperative Agreement No. 367-A-00-02-00224-00)**

#### ***APS: Enhanced Disaster Preparedness in South Asia: Through Community-Based and Regional Approaches***

**Submitted by Riverside Technology, inc.  
08 December 2003**

## **Introduction**

This project is contracted by USAID to the Colorado-based company Riverside Technology, inc. along with Bangladesh-based partners Center for Environment and Geographic Information Services (CEGIS) and the Bangladesh Disaster Preparedness Centre (BDPC). The project is known in short as the *Community Flood Information System*, or CFIS. The Agreement, dated 28 September 2002, requires quarterly reports submitted for the duration of the project.

### **1.5.2c(1) Comparison of actual accomplishments with goals established for the period**

Please reference the table in Appendix 1. This table follows the format of the Work Plan, provided in earlier communications and provided in the Inception Report on 25 July 2003, Appendix 1: Work Plan for Years 1 and 2. A brief status is provided for each project task including the accomplishments relative to the goals and deliverables specified in the Work Plan for years 1 and 2. Activities for years 3-5 are not listed in Appendix 1.

As described in the table, there are delays in certain tasks, and certain deliverables are not as complete as intended. However, these constraints do not compromise the overall project goals or the completion schedule for major project deliverables.

### **1.5.2c(3) Other pertinent information including the status of finances and expenditures...**

Finances and project expenditures are on target at this time. No cost overruns are foreseen.

Subcontracts with Bangladesh-based subcontractors CEGIS and BDPC have been executed and work is generally proceeding on schedule as described in Appendix 1 (attached). However, invoices from these subcontractors to RTi have not been submitted on a routine basis. RTi is conducting a dialog with the subcontractors to establish a regular billing process.

### 1.5.2d Notification, 1.5.2d(2) Favorable developments

As reported in the previous quarterly report, the CFIS project has developed a strong relationship with the CIDA-funded project, Environmental Information Monitoring Network (EMIN). The Bangladesh-based organization CEGIS, a partner in this CFIS project, is the primary local partner for the EMIN project. Also, Riverside Technology, inc. has been subcontracted to provide an advisory role to the EMIN project. CFIS Project Manager Tim Martin traveled to Dhaka under the EMIN project in September 2003 to participate in implementation activities and fieldwork. During this time, Martin was also able to conduct CFIS activities in Dhaka including meetings with subcontractors BDPC, CEGIS, as well as technical activities and fieldwork. EMIN has provided the CFIS project with five Radarsat images. Also, CFIS project partners participated in EMIN needs assessment field activities for defining the community level flood information products. In addition, Martin traveled to Dhaka during the period 01-13 December 2003. The travel costs and labor for this travel are being billed equally to both EMIN and CFIS projects.

Other relevant project coordination during the quarter included a meeting and telephone discussions with Richard Paulson regarding his and other's work on the Mekong River Commission OFDA Flood Early Warning Project. The MRC and CFIS project have some areas of similarity and it was agreed that collaboration between the two projects at a technical level would be useful.

### Other Work Products

Following is a summary of work products and other relevant materials completed by CFIS to date.

**Table 1: Name**

Description	Status	Status of Distribution
Inception Report including work plan, July 2003	Deliverable	Distributed to USAID on 28 July 2003
Beel Topography Report	CEGIS field report, internal	Available from RTi on request (2.5 MB)
Establishing a Hydrological Monitoring Network for the CFIS Study Area	CEGIS field report, internal	-Available from RTi on request (0.5 MB) -Distributed Michael Ernst 23 August 2003
Power Point presentation, RTi to USAID/OFDA Washington, Dec. 2002	RTi presentation, internal	Available from RTi on request (1.6 MB)
Power Point presentation, RTi to FFWC/Dhaka, May 2003	RTi presentation, internal	Available from RTi on request (2.9 MB)
FFWC/Dhaka Meeting Notes of RTi, CEGIS and EMIN, May 2003	RTi and CEGIS notes, internal	-Available from RTi on request (0.05 MB) -Distributed Michael Ernst 23 August 2003
EMIN Flood and Erosion Information Needs Assessment Report (conducted, in part, jointly with CFIS)	First Draft	-Submitted to CIDA and Bangladesh Government 21 November 2003
CFIS Community Flood Information Needs Assessment	Preliminary Draft	-Prepared by BDPC in Bangla in November 2003. Now under translation and revision

**Appendix 1. Status of Activities in Year 1&2 Work Plan, Quarterly Report, November 2003**

Appendix 1: Status of Activities in Year 1 & 2 Work Plan, Quarterly Report, November 2003						
Task No.	Task	Output	Task	Output	Output	November 2003 Quarterly Report
			Begin	Draft	Final	Status
1	Needs assessment, preparation, inception phase					
1.1	State of flood forecasting and monitoring in floodplains	Chapter in inception report	Nov02	Mar03	Apr03	Completed: Inception Report, 25 July 2003.
1.2	Assess needs of agencies; networking	Chapter in inception report	Dec02	Mar03	Apr03	Completed: Inception Report, 25 July 2003. More in-depth needs are being addressed jointly with the EMIN project and reported in the EMIN needs assessment report.
1.3	Study area selection	Chapter in inception report	Nov02	Feb03	Mar03	Completed: Inception Report, 25 July 2003.
1.4	Community needs assessment	Chapter in inception report	Jan03	Mar03	Apr03	Completed: Inception Report, 25 July 2003. Community needs are being address in more depth under Task 3.1, described below.
1.5	Finalize inception report and work plan	Inception report and work plan	Nov02	15Apr 03	May03	Completed: Inception Report, 25 July 2003.
2	Operational System					
2.1	Develop database	GIS and attribute database of study area; chapter in operational system report	Feb03	Jun03	Aug03	--Database was completed in October 2003. The digital elevation model (DEM) is based on outdated maps and requires additional efforts to complete. We are experimenting with different techniques to minimize DEM error but ultimately there are many areas of change since the topographic surveys during 1960s. The flood inundation mapping depends largely on an accurate DEM; thus, outdated DEM could be a significant constraint for certain regions of the study area. --The GIS database report was completed on 30 November 2003. CEGIS's extensive hydrology monitoring program, including survey and installation of 15 field gauges, was was reported separately by CEGIS field report as noted in Table 1.
2.2	Arrange source of SAR images	Arrangement for SAR image acquisition	Dec02		Mar03	The CIDA-funded EMIN project is providing SAR imagery. The following images have been acquired for 2003 and are being used by the project: 28may, 21jun, 15jul, 01sep, 25sep, 19oct. The August 8 image was not acquired due to emergency acquisition for a higher priority project.
2.3	Develop technical methods	Chapter in operational system report	Mar03	Sep03	Nov03	Technical methods are being developed using hydrological data and SAR satellite images from 2003 flood season. Considerable activities during this quarter include: monitoring floodplain gauges until 30 November 2003; re-survey of 6 floodplain gauges due to errors in original survey and datum -- results for the six gauges show leveling errors from 0 to 25 cm; encoding of hydrological data from guages, plotting and checking; analysis of water level data including flood peaks, phase and lag; correlation of floodplain gauges to BWDB gauges; curve-fitting exercises that represent mathematical relation between SAR means (or median) and digital elevation model; organizing data SAR field monitoring campaign; base map preparation. Design of an operational system will likely be delayed until early 2004 to be based on findings using 2003 data. This delay should not impact overall project objectives or key deliverables.

2.6	Operational system extracting flood information	Pilot operational flood information system; chapter in operational system report	Jun03	Oct04	Dec04	Activities began as scheduled in June 2003.
2.7	Monitoring of system performance	Draft monitoring report	Jun04	Oct04	Dec04	No activity.
2.8	Report on Operational System	Report on operational system	Jun04	Oct04	Dec04	No activity.
<b>3 Flood mitigation at community level</b>						
3.1	Community site selection and needs assessment	Chapter in community mitigation report	Mar03	Sep03	Oct03	Activities began ahead of schedule, in January 2003, with field reconnaissance. CFIS worked jointly with EMIN team for conducting community needs for flood information. Draft report was produced in November 2003. In addition, BDPC conducted two needs assessment workshops in the study area during 12-15 November. One workshop was in Dulatpur and the other in Nagarpur. A separate report is being prepared by BDPC that documents these workshops, which were intended to validate the EMIN findings and to provide additional information specific to the CFIS project. Each of the 2-day workshops was structured to include an inaugural session, explanation of the CFIS project and presentation of findings to date, group discussions among like community stakeholders (farmers, community leaders, fishermen, etc.), and presentation of the findings by community members.
3.2	Baseline survey target communities	Chapter in community mitigation report	May03	Oct03	Nov03	Preliminary design of baseline survey was completed in Dhaka on 8-10 December. The survey will be carried out jointly with EMIN during January - March, 2004 with report completed in draft during May, 2004. This delay is believed to be justified, because resources will be shared with EMIN project resulting in a more comprehensive product.
3.3	Communication and dissemination design	Chapter in community mitigation report	Nov03	Jan04	Mar04	No activity.
3.4	Mitigation design	Chapter in community mitigation report	Jan04	Jun04	Aug04	No activity.
3.5	Monitoring design	Chapter in community mitigation report	Jan04	Jun04	Aug04	No activity.
3.6	Report on Community Mitigation	Interim report: community mitigation	Apr04	Jul04	Dec04	No activity.
<b>4 Replicate System</b>						
4.1	Strategy for replication	Brief report: replication strategy	Apr04	Jul04	Sep04	No activity.

5 Workshops and Key Meetings						
5.1	Initial planning	Preliminary work plan, focus on Year 1 and 2	Oct02	Nov02	Dec02	Completed as planned.
5.2	Detailed planning and implementation in USA	Detailed workplan, input to inception report; implementation of specific components	Jan03	Feb03	Mar03	Completed as planned.
5.3	Various workshops, conferences, meetings	2 brief presentations at conferences or workshops; meeting notes			Sep04	Presentation of CFIS project was given in CFAB workshop in January 2003. CEGIS participated in CFAB coordination meetings at ADPC, Bangkok, in November 2003. CEGIS also held a meeting with FFWC during November to discuss the status of CFIS and other related projects. RTi coordinated with USAID/OFDA funded Mekong River Commission project on Flood-Early Warning
5.4	Inception, Workshop 1	Workshop materials and brief proceedings	---	---	May03	As described in the previous quarterly report, an extensive meeting with FFWC was conducted in lieu of an Inception Workshop.
5.5	Workshop 2	Workshop materials and brief proceedings	---	---	Sep04	No activity.
5.6	Workshop 3	Workshop materials and brief proceedings	---	---	Sep04	No activity.